# 113-V1 18191

Introduction to Statistics
Dr Matthew Sunderland

1. Synchronous lecture Monday Wednesday 12:20–2:15
   https://zoom.us/meeting/register/tJErfuyvrjovHdI9iJLZOZDyB7r6UFMbfomA
2. Online problem sets due Sundays
   https://www.math.csi.cuny.edu/webwork2/Math113_18191_Sunderland_F20/
   Both username and password are your CUNY username,
   eg, username first.last00 password first.last00, all lowercase (*not* jsmith5678)
3. Written assignments due some Sundays on
   https://www.gradescope.com course code M4BW6G
4. Reading assignments due each night before lecture
   https://www.perusall.com course code SUNDERLAND-TSH2K
5. Office hours [as of 10/13] every day 12–1 and 6–7
   https://zoom.us/my/mattsunderland
6. Announcements, Lecture Recordings, and Grades posted on
   https://bbhosted.cuny.edu
7. Platform for administering exams TBD,
   possibly Blackboard, Gradescope, WeBWorK, Respondus, or Proctortrack
8. Tutoring available at
   https://www.csi.cuny.edu/students/academic-assistance/tutoring

### Day 1 Homework

1. Download Zoom and create free account
2. Do Online Problem Set 1 by Sunday 8/30
3. Submit Written Assignment 1 by Sunday 8/30—see last two pages of syllabus
4. Do first reading assignment (1.1–1.2) and make 2 comments by Sunday 8/30
5. Do office hour survey https://forms.gle/RRf74atLQkR3kg5DA

**Course Grade** = Average of
- Coursework
  1. Lecture participation
  2. Online problem sets
  3. Written assignments
  4. Reading assignments
- Exam 1
- Exam 2
- Final

**Lecture Recording Statement** *Students who participate in this class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.*

**Deadlines** Add 9/1 Drop 9/15 Withdraw 11/6

**Topics** Reading due - **Lecture date** - Problem set due

A. 1.1 Population and sample - 8.26 - 8.30
B. 1.2 Data type 8.30 - 8.31 - 9.6
C. 2.1 Frequency distribution
D. 2.2 Histogram
E. 3.1 Mean
F. 3.2 Standard deviation
G. 3.3 Boxplot
H. 10.1 Correlation
I. 10.2 Regression
J. 4.1 Probability
K. 4.2 Addition rule, multiplication rule
L. 4.3 Complement, conditional probability
M. 4.4 Counting principle
N. 5.1 Probability distributions
O. 5.2 Binomial
P. 6.1 Standard normal
Q. 6.2 Application
R. 6.3 Sampling distributions
S. 6.4 CLT
T. 7.1 Estimating $p$
U. 7.2 Estimating $\mu$
V. 8.1 Hypothesis testing
W. 8.2 Testing $p$, Testing $\mu$
X. 9.1 Testing $p_1, p_2$
Y. 9.2 Testing $\mu_1, \mu_2$ for independent samples
Z. 9.3 Testing $\mu_1, \mu_2$ for matched pairs

| Mon | | Tue | | Wed | | Thu | Fri |
|---|---|---|---|---|---|---|---|
| | | | | 8.26 | A | | |
| 8.31 | B | | | 9.2 | C,D | | |
| | | | | 9.9 | E | | |
| 9.14 | F | | | 9.16 | G | | |
| 9.21 | H,I | | | 9.23 | review | | |
| | | 9.29 | J | 9.30 | K | | |
| 10.5 | review | | | 10.7 | exam | | |
| | | | | 10.14 | L | | |
| 10.19 | M | | | 10.21 | N | | |
| 10.26 | O | | | 10.28 | P,Q | | |
| 11.2 | R | | | 11.4 | S | | |
| 11.9 | review | | | 11.11 | exam | | |
| 11.16 | T | | | 11.18 | U | | |
| 11.23 | V | | | 11.25 | W | | |
| 11.30 | X | | | 12.2 | Y,Z | | |
| 12.7 | review | | | 12.9 | review | | |

**Lecture Schedule**:
Each semester has 42 lecture classes scheduled. The precise timing of the exams varies from section to section to accommodate weekends, holidays, and the lab schedule, and may be impacted by catastrophic weather or other unpredicted emergencies. The reading and pen-and-paper homework is listed here; your instructor will assign additional problems through *MyStatLab*. For optimal learning, make an attempt at the reading the day before the lecture, attend the lecture, and then start the homework (online or paper) in the hours after the lecture.

| Lesson | Date | Topic | Reading | Paper Homework | Completed? |
|---|---|---|---|---|---|
| 1 | | 1.1: Statistical and Critical Thinking | 1–9 | P11: 1–20 odd | |
| 2 | | 1.2: Basic Types of Data | 13–22 | P23: 5–12,29–32 | |
| 3 | | 2.1: Frequency Distributions | 42–47 | P48: 1,4,5,6 | |
| 4 | | 2.2: Histograms | 51–54 | P55: 1–8 | |
| 5 | | 2.4: Scatterplots, Correlation, Regression | 67–74 | P74: 1–4,6,10 | |
| 6 | | 3.1: Measures of Center | 82–89 | P91: 1–5,7,9,12,29,30 | |
| 7 | | 3.2: Measures of Variation | 97–107 | P107: 1–4,7,9,12,37,38 | |
| 8 | | 3.3: Relative standing, Boxplots | 112–22 | P124: 1–4,31 | |
| 9 | | Review for Exam 1 | | | |
| 10 | | **First Exam, Chapters 1, 2, 3** | | | |
| 11 | | **First Exam, Chapters 1, 2, 3** | | | |
| 12 | | 4.1: Basic Concepts of Probability | 131–42 | P143: 1–27 | |
| 13 | | 4.2: Addition Rule, Multiplication Rule | 147–55 | P155: 1–4,9,11,21 | |
| 14 | | 4.3: Complements, Conditional Probability | 159–65 | P166: 1–3,7,17–20 | |
| 15 | | 4.4: Counting | 169–74 | P174: 1–4,29 | |
| 16 | | 5.1: Probability Distributions | 186–95 | P195: 1–14 | |
| 17 | | 5.2: Binomial Distribution | 199–207 | P209: 1–4,21,23,25 | |
| 18 | | 6.1: Standard Normal Distribution | 226-39 | P240: 1–20 odds,37 | |
| 19 | | 6.2: Applications of Normal Distribution | 242–9 | P251: 1–20 odds | |
| 20 | | 6.3: Sampling Distributions | 254–62 | P262: 1–6,11 | |
| 21 | | 6.4: CLT, First Hypothesis Test | 265–71 | P272: 1–4,5,18 | |
| 22 | | Review for Exam 2 | | | |
| 23 | | **Second Exam, Chapters 4, 5, 6** | | | |
| 24 | | **Second Exam, Chapters 4, 5, 6** | | | |
| 25 | | 7.1: Estimating $p$ | 297–310 | P311: 1–4,9,13,19 | |
| 26 | | 7.2: Estimating $\mu$ | 316–26 | P327: 1–9,11 | |
| 27 | | 8.1: Hypothesis Testing | 356–70 | P371: 1–4,7,8,11,12,15, 16,27,28 | |
| 28 | | 8.2: Testing $p$ | 373–81 | P382: 1–4,13,14,19,27 | |

| Lesson | Date | Topic | Reading | Paper Homework | Completed? |
|---|---|---|---|---|---|
| 29 | | 8.3: Testing $\mu$ | 387–94 | P396: 1–6,9,12,20,21 | |
| 30 | | 9.1: Testing $p_1$, $p_2$ | 414–23 | P423: 1–5,7–10,12 | |
| 31 | | 9.2: Testing $\mu_1$, $\mu_2$, (independent samples) | 428–35 | P437: 1–4,7–10,20 | |
| 32 | | 9.3: Testing $\mu_1$, $\mu_2$, (matched pairs) | 442–7 | P449: 1–6,11,12,18 | |
| 33 | | Review CIs | | | |
| 34 | | Review Hypothesis Testing | | | |
| 35 | | **Third Exam, Chapters 7, 8, 9** | | | |
| 36 | | **Third Exam, Chapters 7, 8, 9** | | | |
| 37 | | 10.1: Correlation | 468–81 | P483: 1–4,9,17,18 | |
| 38 | | 10.2: Regression | 489–97 | P499: 1–5,17,26 | |
| 39 | | 11.1: Goodness-of-Fit | 533–41 | P542: 1–4,8,11,16 | |
| 40 | | 11.2: Contingency Tables | 546–55 | P556: 1–5,10 | |
| 41 | | Review for Final Exam | | | |
| 42 | | Review for Final Exam | | | |

**Formulas and Tables**

Pages 5 and 6 of the "Formulas and Tables" pages are available in your textbook and also here:

https://media.pearsoncmg.com/aw/aw_triola_elemstats_13_2018/website/stat13t_barrelfold.pdf

They (and *only those two* pages) will be made available to you on the final exam. Their usage on the midterm exams depends on your instructor. The first four pages, the tables, are to be avoided in favor of using a calculator to do the computations.

# Written Assignment 1

Name _____ EMPLID _____

Course _____ Date _____

Directions: Upload your completed assignment to Gradescope as a PDF. For full credit, each page of your submission must be right side up and the pages must be in the correct order. If Gradescope asks you to match questions to pages, do so. Many students find it easier to type/annotate directly onto the PDF on the computer; other students prefer to print out the assignment, handwrite their answers, and then use a scanning app to get the completed assignment back onto the computer. If you scan, make sure you scan as a single PDF (with two pages) and make sure you scan as a document, not a picture (completely white background between text).

## Question 1.

Is this your first math course at CSI? If not, what math course did you take before this?

## Question 2.

What suggestions do you have for students to get excited about learning online?

## Question 3.

Are you taking this course to satisfy a requirement? Some other reason?

## Question 4.

Is there some grade in this course that you will strive to make?